

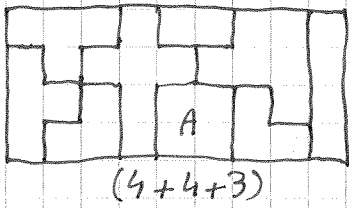
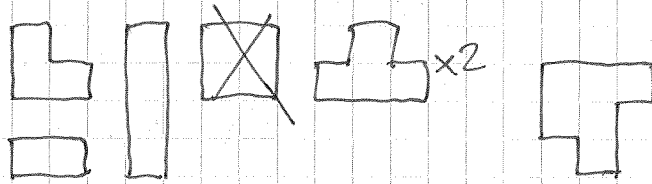
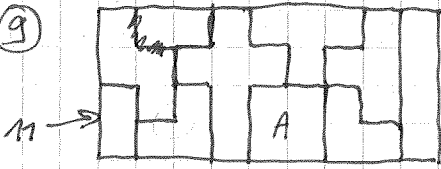
7



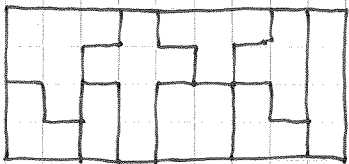
8 Mathieu: menteur
 ⇒ Nico: vérité
 ⇒ Marie: ment.

→ Mathieu

9



$M = 6+3+2 = 4+4+3$
 → En A: pas L ⇒ carré en A.
 → à droite.



3 sol^o

10

$(0,0) \rightarrow (3n, 2n) \rightarrow 3(n-p), 2(n+p) \rightarrow (3n-3p+2q, 2n+2p-3q)$
 $\exists n, p, q \in \mathbb{Z}$

$\begin{cases} 3n-3p+2q=0 \\ 2n+2p-3q=0 \end{cases}$

$\begin{cases} 2n-2p+q=0 \\ n+p-2q=0 \end{cases}$

$13n-5p=0$

$5n-3p=0$

$n=5, p=13, q=12$

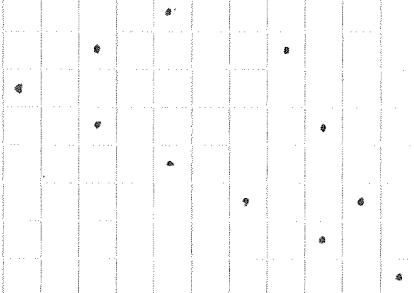
$n=3, p=5, q=4$

→ 12

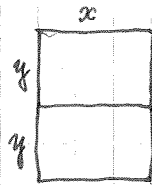
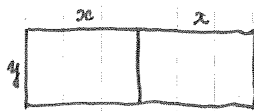
2/2

n

o



11



$$2x + 2y = 14 \text{ places par table}$$

Total: 24, 26 ou 28

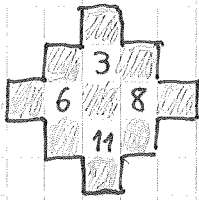
$$2x + y = 11$$

$$x + 2y = 10$$

$$\rightarrow x = 4, y = 3$$

Enfants: $\boxed{12, 13 \text{ ou } 14}$ 3 sol^o
(1 sol^o demandée)

12



Carre sur case blanche

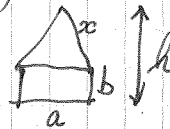
Carre sur case blanche \rightarrow 4 sol^o

(1 rect. contient tjrs 1 case blanche)

13

$$R = ab = \frac{ah_t}{2}$$

$$\boxed{b = \frac{h}{3}}$$



$$h^2 + 120^2 = 150^2$$

$$h = 30 (5^2 - 4^2)^{1/2} = 90 \rightarrow b = 30$$

$$4ab = 120 \times 90 \rightarrow a = 90$$

$$x^2 = 45^2 + 60^2 = 15^2 (3^2 + 4^2) = 15^2 \times 25$$

$$x = 15 \times 5 = 75$$

$$P = 2x + a = \boxed{240}$$

\rightarrow cdu, \dots Mq 1^{er} chiffre est d et d=0

14

$$10^{k+1}a + 10^k b + c = 9 \times (10^k a + c), \quad k \geq 1$$

$$10^k a + 10^k b = 8c$$

$$10^k (a+b) = 8c$$

$$a+b = \frac{8c}{10^k}$$

$$10^k c \quad c < 10^k$$

$$\rightarrow k = 1, 2 \text{ ou } 3$$

• $k=1 \rightarrow c=5, a+b=4$ (135, 225, 315, 405)

• $k=2 \rightarrow c=25 \rightarrow a+b=2$ (~~125~~, 2025)

ou 75 $\rightarrow a+b=6$ (~~1575~~, ~~2475~~, ~~3375~~, ~~4275~~, ~~5175~~, 6075)

• $k=3 \rightarrow c=125 \rightarrow a+b=1$ (10125)

ou 375 $a+b=3$ (~~12375~~, ~~21375~~, 30375)

ou 625 $a+b=5$ (~~14625~~, ~~23625~~, ~~32625~~, ~~41625~~, ~~50625~~)

ou 875 $a+b=7$ (~~16875~~, ~~25875~~, ~~34875~~, ~~43875~~, ~~52875~~, 61875, 70875)

$$\boxed{10125, 30375, 2025} \quad 3 \text{ sol}^o$$

15) $b^2 - a^2 = 10^2 - 8^2$ ~~$b - a = \frac{76}{x}$~~

~~228~~ ~~2272~~
~~228~~
 $x = 6,75$!

Côte: $2x$

$\sqrt{(9+x)(x+1)(x-1)(9-x)}$

$\sqrt{(81-x^2)(x^2-1)} + \sqrt{(64-x^2)(x^2-4)} + \sqrt{(49-x^2)(x^2-1)}$
 $= 4x^2 \frac{\sqrt{3}}{4} = x^2 \sqrt{3}$

$x = 27/4 \rightarrow \frac{729}{16} \times 1,7321$

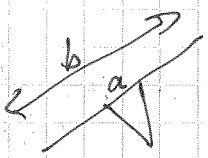
729
 364,5
 182,25
 91,125
 45,5625 $\times 1,7321$

45,5625
 31,89375
 1,366875
 0,091125
 0,4556

31,89375
 136,6875

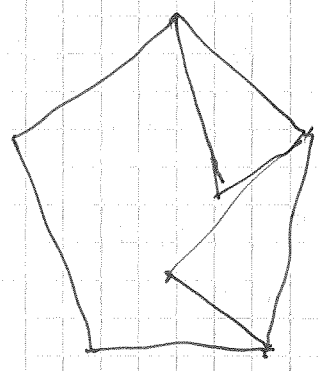
78,918806
 78,92 ?

17) $1 \text{ dm}^2 = 100 \text{ cm}^2$



$\frac{a}{b} ?$

~~120 cm~~
~~155 cm~~



$100 + 20$

$120 + 24 = 144$

(3)

144
 288

 172,8
 34,56

 207,36
 41,48

 248,84 ?

- 16
- | | |
|------------|---|
| A | B |
| (1, 1) | (3, 2) |
| C (4, 6) | D (11, 7) |
| E (12, 19) | F (32, 20) |
| G (33, 53) | H (87, 54) |
| | (x_i, y_i) |
| | (x _n , y _n) |

$$y_n = x_{n-1} + y_{n-1} + 2$$

$$x_n = 2x_{n-1} + y_{n-1} + 3 = x_{n-1} + y_n + 1$$

H (87, 54)	J (231, 143)
L (608, 376)	N (1595, 986)
P (4173, 2583)	R (10944, 6767)
T (28655, 17710)	V (75023, 46367)
X (196416, 121392)	
Z (514227, 317810)	

18 $N = a^2 + b^2 = c^2 + d^2$

$1752 + 907i$

$1172 + 1587i$

→ PGCD

$580 - 680i$

na

$29 \times 29 = 841$

~~1160 + 1380i~~

4×289

$29 - 34i$

$29^2 + 34^2 = 841 + 1156 = 1997$

3892	153	1997
1997		
1895	1	
17973		1949
9785		
7988		
17973		
17973		
0		

$18000 - 27$

1949×1997

111
37
148
37
185

164
205
129
34
141
188

1949 ~~23 29 34 37 41 43 47~~

1997